

IN THE CLAIMS

Please amend the claims as follows:

Claims 1-21 (Cancelled).

Claim 22 (New): A retransmission control method for a multicast information distribution service which distributes, from an information distribution apparatus, multicast information to a plurality of wireless terminals within a service area of a wireless region, the plurality of wireless terminals each configured to send at an arbitrary time a retransmission request signal when a specified packet previously transmitted by said information distribution apparatus is not received, comprising the steps of:

receiving, at said information distribution apparatus, one of a plurality of said retransmission request signals from a corresponding one of said plurality of wireless terminals;

notifying, by said information distribution apparatus, another of the plurality of wireless terminals that a retransmission request signal corresponding to a specific packet has been received; and

retransmitting, by said information distribution apparatus, the specified packet at a predetermined timing

Claim 23 (New): The method of Claim 22, further comprising:

repeating said steps of receiving, notifying and retransmitting until no retransmission request signals are received by said information distribution apparatus or until a predetermined number of retransmissions has occurred.

Claim 24 (New): The method of Claim 22, further comprising:

controlling said step of retransmitting so that the specified packet is retransmitted only at the predetermined timing even if a plurality of retransmission request signals are received.

Claim 25 (New): The method of Claim 22, further comprising:

notifying, by said information distribution apparatus, the plurality of wireless terminals of the predetermined timing at which the information requested in the retransmission request signal will be retransmitted.

Claim 26 (New): The method of Claim 22, further comprising:

notifying, by said information distribution apparatus, the plurality of wireless terminals of

- a channel to be used for a type of information to be retransmitted;
- a retransmission control data transmission period;
- a retransmission control data transmission period timing;
- a channel to be used for transmitting retransmission control data; and
- a number of times said step of repeating executes.

Claim 27 (New): The method of Claim 22, further comprising:

controlling, by said information distribution apparatus, the plurality of wireless terminals with at least one of

- a channel to be used for a type of information to be retransmitted;
- a retransmission control data transmission period;
- a retransmission control data transmission period timing;
- a channel to be used for transmitting retransmission control data; and

a number of times said step of repeating executes.

Claim 28 (New): The method of Claim 22, further comprising:

controlling said information distribution apparatus with at least one of

a channel to be used for a type of information to be retransmitted;

a retransmission control data transmission period;

a retransmission control data transmission period timing;

a channel to be used for transmitting retransmission control data; and

a number of times said step of repeating executes.

Claim 29 (New): The method of Claim 22, further comprising:

notifying, by said information distribution apparatus, the plurality of wireless terminals of

a packet-specific retransmission request acceptance;

a packet-specific remaining number of retransmission indicator; and

a packet-specific retransmission timing.

Claim 30 (New): The method of Claim 22, further comprising:

controlling, by said information distribution apparatus, the plurality of wireless terminals with at least one of

a packet-specific retransmission request acceptance;

a packet-specific remaining number of retransmission indicator; and

a packet-specific retransmission timing.

Claim 31 (New): The method of Claim 22, further comprising:

controlling, by said information distribution apparatus, said information distribution apparatus with at least one of

a packet-specific retransmission request acceptance;

a packet-specific remaining number of retransmission indicator; and

a packet-specific retransmission timing.

Claim 32 (New): The method of Claim 22, further comprising:

determining, by said information distribution apparatus, whether or not a packet identified in a retransmission request signal has been previously identified for retransmission; and

if a result of said step of determining whether or not a packet has been previously identified is negative, flagging, by said information distribution apparatus, said packet identified in said retransmission request signal.

Claim 33 (New): The method of Claim 32, further comprising:

determining, by said information distribution apparatus, whether or not a present timing corresponds to a predetermined timing for providing updated retransmission control information to said plurality of mobiles; and

if a result of said step of determining whether or not a present timing corresponds to a predetermined timing is positive, providing, by said information distribution apparatus, said updated retransmission control information to said plurality of mobiles.

Claim 34 (New): The method of Claim 33, further comprising:

determining, by said information distribution apparatus, whether or not said present timing corresponds to a predetermined timing for retransmitting said flagged packet to said plurality of mobiles;

if a result of said step of determining whether or not a present timing corresponds to a predetermined timing for retransmitting is positive, determining, by said information distribution apparatus, whether or not said packet remains to be retransmitted; and

if a result of said step of determining whether said packet remains is positive, retransmitting, by said information distribution apparatus, said flagged packet to said plurality of mobiles.

Claim 35 (New): The method of Claim 34, further comprising:

decrementing, by said information distribution apparatus, a remaining number of permissible retransmissions after said step of retransmitting said flagged packet to said plurality of mobiles;

determining, by said information distribution apparatus, whether or not said decremented remaining number of permissible retransmissions is zero; and

if the remaining number of permissible retransmissions is not zero, updating, by said information distribution apparatus, retransmission control data; and

if the remaining permissible number of retransmissions is zero, deleting, by said information distribution apparatus, a retransmission request record and updating retransmission control data.

Claim 36 (New): The method of Claim 35, further comprising:

reprioritizing, by said information distribution apparatus, a sequence of packets to be retransmitted after said step of retransmitting said flagged packet.

Claim 37 (New): A computer program product, comprising instructions configured to enable information distribution apparatus to execute any one of Claims 22 – 36.

Claim 38 (New): An information distribution apparatus in a multicast information distribution service, said information distribution apparatus configured to distribute multicast information to a plurality of wireless terminals within a service area of a wireless region, the plurality of wireless terminals each configured to send at an arbitrary time a retransmission request signal when a specified packet previously transmitted by said information distribution apparatus is not received, said information distribution apparatus comprising:

a receiver configured to receive one of a plurality of said retransmission request signals from a corresponding one of said plurality of wireless terminals;

a notification device configured to notify another of the plurality of wireless terminals that a retransmission request signal corresponding to a specific packet has been received; and

a transmitter configured to retransmit the specified packet at a predetermined timing;

Claim 39 (New): The information distribution apparatus of Claim 38, further comprising:

a controller configured to cause the information distribution apparatus to repeat steps of receiving, notifying and retransmitting until no retransmission request signals are received by said information distribution apparatus or until a predetermined number of retransmissions has occurred.

Claim 40 (New): The information distribution apparatus of Claim 38, further comprising:

a controller configured to control the information distribution apparatus so that the specified packet is retransmitted only at the predetermined timing even if a plurality of retransmission request signals are received.

Claim 41 (New): The information distribution apparatus of Claim 38, further comprising:

a notification device configured to notify the plurality of wireless terminals of the predetermined timing at which the information requested in the retransmission request signal will be retransmitted.

Claim 42 (New): The information distribution apparatus of Claim 38, further comprising:

a notification device configured to notify the plurality of wireless terminals of

- a channel to be used for a type of information to be retransmitted;
- a retransmission control data transmission period;
- a retransmission control data transmission period timing;
- a channel to be used for transmitting retransmission control data; and
- a number of times said step of repeating executes.

Claim 43 (New): The information distribution apparatus of Claim 38, further comprising:

a controller configured to control the plurality of wireless terminals with at least one of

- a channel to be used for a type of information to be retransmitted;
- a retransmission control data transmission period;

- a retransmission control data transmission period timing;
- a channel to be used for transmitting retransmission control data; and
- a number of times said step of repeating executes.

Claim 44 (New): The information distribution apparatus of Claim 38, further comprising:

a controller configured to control said information distribution apparatus with at least one of

- a channel to be used for a type of information to be retransmitted;
- a retransmission control data transmission period;
- a retransmission control data transmission period timing;
- a channel to be used for transmitting retransmission control data; and
- a number of times said step of repeating executes.

Claim 45 (New): The information distribution apparatus of Claim 38, further comprising:

a notification device configured to notify the plurality of wireless terminals of

- a packet-specific retransmission request acceptance;
- a packet-specific remaining number of retransmission indicator; and
- a packet-specific retransmission timing.

Claim 46 (New): The information distribution apparatus of Claim 38, further comprising:

a controller configured to control the plurality of wireless terminals with at least one of



- a packet-specific retransmission request acceptance;
- a packet-specific remaining number of retransmission indicator; and
- a packet-specific retransmission timing.

Claim 47 (New): The information distribution apparatus of Claim 38, further comprising:

a controller configured to control said information distribution apparatus with at least one of

- a packet-specific retransmission request acceptance;
- a packet-specific remaining number of retransmission indicator; and
- a packet-specific retransmission timing.

Claim 48 (New): The information distribution apparatus of Claim 38, further comprising:

a controller configured to:

- determine whether or not a packet identified in a retransmission request signal has been previously identified for retransmission; and
- flag said packet identified in said retransmission request signal for retransmission if the controller determines said packet has not been previously identified for retransmission.

Claim 49 (New): The information distribution apparatus of Claim 48, wherein said controller is configured to:

- determine whether or not a present timing corresponds to a predetermined timing for providing updated retransmission control information to said plurality of mobiles; and

cause said information distribution apparatus to transmit said updated retransmission control information to said plurality of mobiles if the controller determines that the present timing corresponds to the predetermined timing.

Claim 50 (New): The information distribution apparatus of Claim 49, wherein said controller is configured to:

determine whether or not said present timing corresponds to a predetermined packet retransmission timing;

determine whether or not said flagged packet remains to be retransmitted if the controller determines that the present timing corresponds to the predetermined packet retransmission timing; and

cause said information distribution apparatus to retransmit said flagged packet to said plurality of mobiles if said controller determines said packet flagged remains to be retransmitted.

Claim 51 (New): The information distribution apparatus of Claim 50, wherein said controller is configured to:

decrement a remaining number of retransmissions for said flagged packet;

determine whether or not said decremented remaining number of retransmissions is zero; and

update retransmission control data for said flagged packet if the remaining number of retransmissions is not zero; and

delete a record of a retransmission request for said flagged packet and then update the retransmission control data if the remaining number of retransmissions for said flagged packet is zero.

Claim 52 (New): The information distribution apparatus of Claim 51, wherein said controller is configured to:

reprioritize a sequence of packets to be retransmitted after said flagged packet is retransmitted.

Claim 53 (New): A base station configured to include an information distribution apparatus as recited in any one of Claims 38-52.

Claim 54 (New): A retransmission control method for mobile terminal in a multicast information distribution service which distributes, from an information distribution apparatus, multicast information to a plurality of wireless terminals within a service area of a wireless region, comprising the steps of:

receiving, from said information distribution apparatus, indication that a specified packet has been sent from said information distribution apparatus;

transmitting at an arbitrary time, to said information distribution apparatus, a retransmission request signal when said specified packet is not received;

receiving, from said information distribution apparatus, an acknowledgement indicating that said retransmission request signal has been received, said acknowledgement broadcast to each of said plurality of wireless terminals; and

receiving, from said information distribution apparatus, the specified packet at a predetermined timing; wherein

said wireless terminal configured to operate in parallel to another wireless terminal within said service area of said wireless region, each simultaneously configured to send retransmission request signals at arbitrary times.

Claim 55 (New): The method of Claim 54, further comprising:

receiving, from said information distribution apparatus, notification of the predetermined timing at which the information requested in the retransmission request signal will be retransmitted.

Claim 56 (New): The method of Claim 54, further comprising:

receiving, from said information distribution apparatus, notification of

- a channel to be used for a type of information to be retransmitted;
- a retransmission control data transmission period;
- a retransmission control data transmission period timing;
- a channel to be used for transmitting retransmission control data; and
- a number of times said step of repeating executes.

Claim 57 (New): The method of Claim 54, further comprising:

receiving, from said information distribution apparatus, notification of

- a packet-specific retransmission request acceptance;
- a packet-specific remaining number of retransmission indicator; and
- a packet-specific retransmission timing.

Claim 58 (New): The method of Claim 54, further comprising:

receiving distribution information about a distribution service;

determining if said distribution information indicates said distribution service permits retransmissions; and

if said distribution service permits retransmissions, determining if a packet has been missed or requires correction.

Claim 59 (New): The method of Claim 58, further comprising:

if said step of determining if a packet has been missed or requires correction is affirmative resulting in identification of a packet to be retransmitted, determining from said distribution information if a present time corresponds to a reception time for receiving retransmission control information;

if said present time corresponds to said reception time for receiving retransmission control information, receiving said retransmission control information; and

determining if said packet to be retransmitted is listed in said retransmission control information.

Claim 60 (New): The method of Claim 59, further comprising:

if said packet to be retransmitted is not listed in said retransmission control information, determining whether a time out of a random timer has occurred;

if said time out has occurred, sending a retransmission request signal.

Claim 61 (New): The method of Claim 60, further comprising:

if said time out has not occurred, determining from said distribution information if a next present time corresponds to a next reception time for receiving retransmission control information;

if said next present time does not corresponds to said next reception time for receiving retransmission control information, repeating said steps of determining whether a time out of a random timer has occurred and, if said time out has not occurred, determining from said

distribution information if a next present time corresponds to a next reception time for receiving retransmission control information, until said time out has occurred; and sending a retransmission request signal.

Claim 62 (New): The method of Claim 61, further comprising:

if said packet to be retransmitted is listed in said retransmission control information, determining whether said present time corresponds to a time to receive a retransmitted packet corresponding to said packet to be retransmitted;

if said present time corresponds to said time to receive a retransmitted packet; receiving said retransmitted packet;

if said present time does not corresponds to said time to receive a retransmitted packet; repeating said steps of

determining from said distribution information if a present time corresponds to a reception time for receiving retransmission control information;

receiving said retransmission control information; and

determining if said packet to be retransmitted is listed in said retransmission control information; and

receiving said packet to be retransmitted when said present time corresponds to a reception time for receiving retransmission control information said packet to be retransmitted is listed in said retransmission control information.

Claim 63 (New): A computer program product, comprising instructions configured to enable a mobile terminal to execute any one of Claims 54-62.

Claim 64 (New): A mobile terminal configured for use in a multicast information distribution service which distributes, from an information distribution apparatus, multicast information to a plurality of wireless terminals within a service area of a wireless region, said mobile terminal comprising:

a receiver configured to receive, from said information distribution apparatus, indication that a specified packet has been sent from said information distribution apparatus;

a transmitter configured to transmit at an arbitrary time, to said information distribution apparatus, a retransmission request signal when said specified packet is not received;

said receiver further configured to receive, from said information distribution apparatus, an acknowledgement indicating that said retransmission request signal has been received, said acknowledgement broadcast to each of said plurality of wireless terminals; and

said receiver further configured to receive, from said information distribution apparatus, the specified packet at a predetermined timing; wherein

said wireless terminal is configured to operate in parallel to another wireless terminal within said service area of said wireless region, each simultaneously configured to send retransmission request signals at arbitrary times.

Claim 65 (New): The mobile terminal of Claim 64, said receiver further configured to receive, from said information distribution apparatus, notification of the predetermined timing at which the information requested in the retransmission request signal will be retransmitted.

Claim 66 (New): The mobile terminal of Claim 64, said receiver further configured to receive, from said information distribution apparatus, notification of

- a channel to be used for a type of information to be retransmitted;
- a retransmission control data transmission period;
- a retransmission control data transmission period timing;
- a channel to be used for transmitting retransmission control data; and
- a number of times said step of repeating executes.

Claim 67 (New): The mobile terminal of Claim 64, said receiver further configured to receive, from said information distribution apparatus, notification of

- a packet-specific retransmission request acceptance;
- a packet-specific remaining number of retransmission indicator; and
- a packet-specific retransmission timing.

Claim 68 (New): The mobile terminal of Claim 64, said receiver further configured to receive distribution information about a distribution service, said mobile terminal further comprising:

- a controller configured to determine if said distribution information indicates said distribution service permits retransmissions; and if said distribution service permits retransmissions, determine if a packet has been missed or requires correction.

Claim 69 (New): The mobile terminal of Claim 68, said controller further configured to:

- if a packet has been missed or requires correction is affirmative resulting in identification of a packet to be retransmitted, determine from said distribution information if a present time corresponds to a reception time for receiving retransmission control information;



if said present time corresponds to said reception time for receiving retransmission control information, receive said retransmission control information; and

determine if said packet to be retransmitted is listed in said retransmission control information.

Claim 70 (New): The mobile terminal of Claim 69, said controller further configured to:

if said packet to be retransmitted is not listed in said retransmission control information, determine whether a time out of a random timer has occurred;

if said time out has occurred, send a retransmission request signal.

Claim 71 (New): The mobile terminal of Claim 70, said controller further configured to:

if said time out has not occurred, determine from said distribution information if a next present time corresponds to a next reception time for receiving retransmission control information;

if said next present time does not correspond to said next reception time for receiving retransmission control information, repeatedly determine whether a time out of a random timer has occurred, and if said time out has not occurred, determine from said distribution information if a next present time corresponds to a next reception time for receiving retransmission control information until said time out has occurred, and then send a retransmission request signal.

Claim 72 (New): The mobile terminal of Claim 71, said controller further configured to:

if said packet to be retransmitted is listed in said retransmission control information, determine whether said present time corresponds to a time to receive a retransmitted packet corresponding to said packet to be retransmitted;

if said present time corresponds to said time to receive a retransmitted packet; receive said retransmitted packet;

if said present time does not corresponds to said time to receive a retransmitted packet; repeatly

determine from said distribution information if a present time corresponds to a reception time for receiving retransmission control information;

receive said retransmission control information; and

determine if said packet to be retransmitted is listed in said retransmission control information; and

receive said packet to be retransmitted when said present time corresponds to a reception time for receiving retransmission control information said packet to be retransmitted is listed in said retransmission control information.